

SMART MEDICINE REMINDER AND DISPENSER

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ABSTRACT

Because of our specialized understanding in our profession, engineers have a higher duty to address societal problems as they arise. Many individuals today all around the world suffer from common disorders like high blood pressure, diabetes, etc. People with chronic illnesses should take their medications on a regular basis to treat their conditions, but in today's hectic society, many people forget to do so. Elderly people frequently forget to take their medications or take the incorrect medication at the wrong time. The project that we selected is entirely for the health of the elderly and those who regularly take medication. Our solution combines a medication dispenser and a reminder to dispense the right medication at the right time. The whole control activity of the smart medicine reminder is regulated by this system's Arduino UNO board. The voice alarm used by the system to remind the patient to take their medication can be adjusted by the patient or their caretakers. The close relatives of the patient, like son, daughter, wife, husband, mother, or father, can be the voice used in this system. To keep the date and time accurate for the system, we use a real-time clock module. Also, we use a 1x5 keypad to set alarms, and an LCD display is used to show the current time and date as well as to set alarms. The dispensing section uses servo motors to provide the medication efficiently. To remind hospital patients to take their medications on time, this approach can also be utilized in hospitals. This Smart medicine dispensers and reminders are highly helpful in a variety of scenarios, including patient homes, hospitals, COVID wards, and quarantine areas. It may also be incorporated into the system in the patient monitoring system.

Keywords : Medicine reminder, Arduino UNO, voice alarm, real-time clock, dispenser

I INTRODUCTION

An innovative paradigm change in the IT industry is the Internet of Things. The two terms "Internet" and "Things" were combined to form the phrase "Internet of Things," which is also commonly abbreviated as "IoT." [1] The majority of people now require drugs in their daily lives, whereas this was not the case in the previous two years due to the enormous increase in ailments [2]. A substantial percentage of individuals don't take their medications as directed. This may result in health problems, a decline in quality of life, and even death [3]. The use of the automatic medicine reminder and dispenser helps to resolve these problems. Anyone of any age can utilise this system because it is so easy to use and update. This technique can also be helpful in hospitals where there are many patients and it might be challenging for personnel to remember medication and dosages.

II OBJECTIVES

The main objective of Smart medicine reminder & dispenser:

- Help the elderly people who live alone.

- To avoid the intake of expired medicine.
- People who forget to take medicine due to their tight schedules.
- This system can also be used in hospitals.
- Covid-19 Quarantine centres

III EXISTING SYSTEM

The existing Medicine reminder and dispenser only uses the buzzer to indicate the person to intake the medicine and the dispenser provides the medicine but sometimes it's hard to sort out whether it is providing the correct medicine at the correct time.

Drawbacks of existing systems

- An Android-based Medication Reminder System based on OCR using ANN This system is completely based on the android version. So, it is not appropriately suitable for elder persons[4].
- RMAIS- RFID-based Medication Adherence Intelligent System. In this system totally five

expensive materials are used for system architecture and it is non-portable.

IV PROPOSED SYSTEM

Our project consists of two different parts namely medicine reminder and medicine dispenser, Arduino is used for controlling the overall action. First, the medicine reminder part consists of the components like a buzzer, speaker, record, and playback module, and LED display for setting the alarm time. Then the medicine dispenser part consists of servo motors. Arduino is programmed in such a way that, it triggers the buzzer and record and playback module to give the alarm and it also triggers the servo motor to open for providing the medicine on time. The record and playback module ISD1820 is used in the system to provide the patient or care taken to pre-feed the required voice in before hands. the voice can be the close relative of the patient so it is very useful for elderly people who live alone. The alarm time is programmed using the Arduino IDLE software. when the time reaches the preloaded alarm time it triggers the buzzer, Voice recorder module, and servo motor.

V HARDWARE REQUIREMENTS

- ATMEGA328P Microcontroller- Arduino UNO
- LCD display
- RTC Real Time Clock
- 1*5 keyboard
- Speaker
- Buzzer
- Servo motor
- Record and playback module
- Power supply

VI METHODOLOGY

The proposed system consists of the following components like, a Real-time clock, Arduino UNO, LCD display, Record and playback module, Speaker, Buzzer, and Servo meter. All the components are integrated using the Arduino UNO board. Arduino UNO is programmed using software known as Arduino IDLE which is an open source available in the browser. All the control actions required for this proposed system like giving the alarm using a buzzer and record and playback module and triggering the servo motor to rotate at the angle of degree. The Arduino board is programmed in such a way that it triggers the buzzer, voice record, and servo motor on the alarm time which is set in the program. 1X5 keyboard is used for setting the time which is displayed in the LCD display with help of RTC. The

3 pins of a 1X5 keyboard are used in which the first button is used for changing the option and the other 2 buttons is used for increasing and decreasing the values. Then it is set and saved. At the alarm time, buzzer alerts and voice commands come from the speaker with the help of a recording and playback module. 'Take the tablet' is displayed on the LCD display and servo motors open one by one. We have used two servo motors for two different medicine.

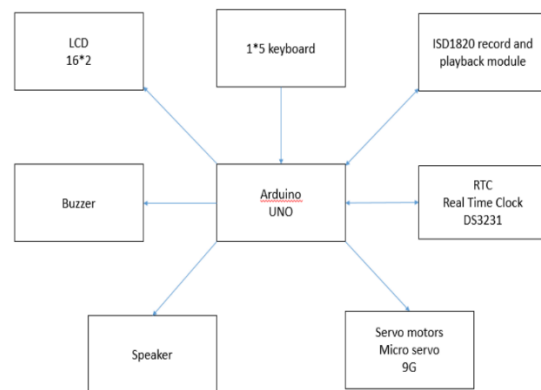


Fig 1: Methodology of smart medicine reminder and dispenser

VII HARDWARE IMPLEMENTATION

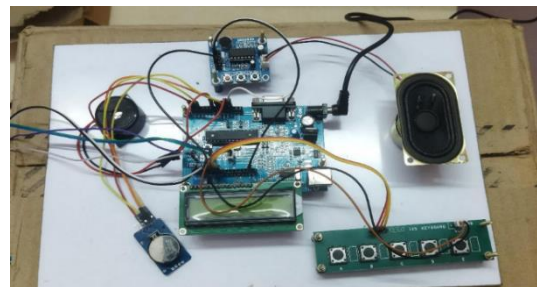


Fig 2 represents the working model of the smart medicine reminder and dispenser. Arduino is used for controlling the components like servo motors, RTC, Liquid crystal displays, and Record and playback modules.

VIII CONCLUSION

In conclusion to the project, a smart medicine reminder and dispenser system is made which is very helpful for patients who take medicine on a regular basis. This system reminds the patient of a buzzer sound and voice command. Servo motors are used to dispense medicine on time. This system can be further developed by adding many features like mobile application, WIFI controlling, etc...

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